



**PATENT APPLICATION**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Tomoyuki KOGO

Group Art Unit: 3748

Application No.: 10/594,580

Examiner: T. TRIEU

Filed: September 27, 2006

Docket No.: 129354

For: EXHAUST GAS CONTROL APPARATUS AND EXHAUST GAS CONTROL  
METHOD FOR INTERNAL COMBUSTION ENGINE

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

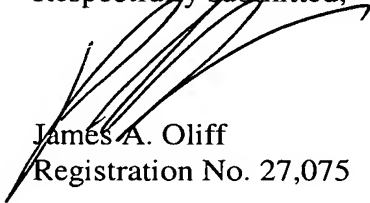
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This request is being filed with a Notice of Appeal. Review of the July 13, 2010 Final Rejection is requested for the reasons set forth in the attached five or fewer sheets.

Should any questions arise regarding this submission, or the Review Panel believe that anything further would be desirable in order to place this application in even better condition for allowance, the Review Panel is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

  
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JAO:PTM/emd

Attachment:  
Notice of Appeal

Date: October 13, 2010

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**REMARKS**

Claims 10-18 are pending in this application, all claims being finally rejected. No amendments are filed with this request. However, the Examiner entered Applicant's September 13, 2010 Amendment After Final Rejection.

The Final Rejection rejects claims 10-18 under 35 U.S.C. §112, second paragraph; rejects claim 10-12, 14-16 and 18 under 35 U.S.C. §103(a) over Saito et al., JP-A-2003-206722; rejects claims 10-12, 14-16 and 18 under 35 U.S.C. §103(a) over Saito in view of either Kobayashi et al., JP-A-2003-278536, or Nagae, JP-A-2002-070536; and rejects claims 13 and 17 under 35 U.S.C. §103(a) over Saito in view of Kobayashi or Nagae and further in view of Kawamoto, JP-A-2003-120353. Applicant respectfully submits that the rejections contain clear deficiencies.

**I. 35 U.S.C. §112, Second Paragraph Rejection of Claims 10-18**

The Final Rejection alleges that claims 10-18 are "incomplete for omitting essential elements, such omission amounting to a gap between the elements," citing MPEP §2172.01. The Final Rejection alleges that structural connectivity of a controller unit and sensors with the engine are omitted. However, a controller unit and sensors are not essential subject matter to the present claims.

According to the MPEP, "[A] claim which fails to interrelate essential elements of the invention as defined by applicant(s) in the specification may be rejected under 35 U.S.C. 112, second paragraph, for failure to point out and distinctly claim the invention." MPEP §2172.01. Applicant's specification does not define the omitted features as being "essential." Thus, the omitted features are not essential.

Additionally, "it is not essential to a patentable combination that there be interdependency between the elements of the claimed device or that all the elements operate concurrently toward the desired result." MPEP §2172.01, *citing Ex parte Nolden*, 149 USPQ

378, 380 (Bd. Pat. App. 1965). "A claim does not necessarily fail to comply with 35 U.S.C. 112, second paragraph where the various elements do not function simultaneously, are not directly functionally related, do not directly intercooperate, and/or serve independent purposes." *Id.*, citing *Ex parte Huber*, 148 USPQ 447, 448-49 (Bd. Pat. App. 1965).

Although the Final Rejection asserts that the structural connectivity between the controller and the sensors is essential, the above case law holds that such structural relationships need not be recited in the claims. Thus, Applicant submits that claims 10-18 do not omit essential subject matter and are definite.

**2. 35 U.S.C. §103(a) Rejection of Claims 10-12, 14-16 and 18 Under 35 U.S.C. §103(a) over Saito**

Saito fails to disclose and would not have rendered obvious the claimed combinations of features recited in independent claims 10, 14 and 18. Saito fails to disclose "a supercharger which includes a turbine that is provided in the exhaust passage at a position upstream of the catalyst," as recited in independent claims 10, 14 and 18.

The Final Rejection admits that Saito "fails to disclose the position of the turbine being provided in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the position of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of turbine." To remedy this deficiency, the Final Rejection asserts that "the positioning of the turbine being in the exhaust passage at a position upstream of the catalyst having an oxidizing ability, or the positioning of the catalyst having an oxidizing ability and being provided in the exhaust passage at a position downstream of the turbine in the above claimed positions would have been obvious to one having ordinary skill in the art." The Final Rejection provides no support for this conclusory assertion other than alleging that "the arrangement of these devices would have reduced exhaust emissions." Yet, none of the applied references (including Saito) suggests that

moving Saito's catalyst to upstream of Saito's turbine would reduce emissions. There is no basis for the allegation that the proposed arrangement of these devices would have reduced exhaust emissions.

Indeed, Saito discloses an advantage of its disclosed location of the catalyst. That is, Saito discloses that the filter 21 is heated by the hot exhaust gas provided to the filter, and the exhaust gas is heated by the decrease in the boost pressure caused by the combustion of CO and HC due to the catalytic reaction at the catalyst (see paragraph [0043] of Saito). When the location of the catalyst is changed, this advantage is eliminated. Therefore, one of ordinary skill would not have been led to change the location of the catalyst (as proposed by the Final Rejection) because doing so would eliminate the above advantage.

As acknowledged by the Final Rejection, Saito fails to specifically disclose "a supercharger which includes a turbine that is provided in the exhaust passage at a position upstream of the catalyst," as recited in independent claims 10, 14 and 18. Further, there is no basis for modifying the structure of Saito to include the above feature. Indeed, the specific teachings of Saito provide an advantage for its disclosed location of the catalyst, and would not have motivated one of ordinary skill to eliminate this advantage by moving the catalyst location.

**2. 35 U.S.C. §103(a) Rejection of Claims  
10-12, 14-16 and 18 over Saito in view of Kobayashi or Nagae**

In justifying the combination of references, the Final Rejection alleges that the combination would have been obvious to one having ordinary skill in the art "to prevent/solve a clogging/accumulating of particulate matter or soot when the exhaust gas is to be discharged to the atmosphere." In the alternative, the Final Rejection alleges that the combination "would have yielded predictable results, namely, to prevent/solve a clogging/accumulating of

particulate matter or soot when the exhaust gas is to be discharged to the atmosphere."

Applicant respectfully disagrees.

As discussed in the present specification, arranging a turbine and catalyst as claimed overcomes technical difficulties that are neither disclosed nor addressed in the applied references. As discussed in the present specification,

[in an] internal combustion engine including a centrifugal supercharger, even when the temperature of the exhaust gas released from the internal combustion engine is increased, the energy of the exhaust gas is used for increasing a rotational speed of a turbine. Accordingly, the temperature of the exhaust gas flowing from the NO<sub>x</sub> catalyst cannot be increased sufficiently. Also, as the energy of the exhaust gas is used for increasing the rotational speed of the turbine and therefore the rotational speed of the turbine increases, a rotational speed of a compressor also increases and an amount of air taken in a cylinder increases. Accordingly, the intake air amount needs to be adjusted by decreasing an opening amount of an intake throttle valve. As a result, a pumping loss of the internal combustion engine increases, which causes deterioration of fuel efficiency.

Applicant's specification at page 2, line 28 - page 3, line 4.

As noted in the specification, the prior art fails to recognize this problem: "In order to address this problem, a technology is proposed, in which a variable nozzle provided in the centrifugal supercharger or a wastegate valve is fully open such that the energy of the exhaust gas is prevented from being used for increasing the rotational speed of the turbine." *Id.* at page 3, lines 5-8. With this solution to the problems of the prior art, "an amount of energy of the exhaust gas, which is used for increasing the rotational speed of the turbine, decreases. As a result, the intake air amount becomes smaller than that before the variable nozzle or wastegate valve is fully opened, which may cause an increase in amount of smoke." *Id.* at page 3, lines 12-15.

None of the applied references recognizes this problem or proposes a solution to this problem. That is, Applicant discovered the source of the problem solved by the claimed

invention. This is part of the "subject matter as a whole" that must be considered by the Examiner. *See* MPEP §2141.02(III) and (IV). Thus, the combination of claimed features would not have been obvious from the applied references as alleged in the Final Rejection.

**3. 35 U.S.C. §103(a) Rejection of Claims 13 and 17 Over Saito\_  
in view of Kobayashi or Nagae and further in view of Kawamoto**

Claim 13 recites "the turbine rotation controller decreases the amount of energy of the exhaust gas ... when a value detected by the intake air amount detector or the intake air pressure detector after the after-injection is performed is higher than a value detected by the intake air amount detector or the intake air pressure detector before the after-injection is performed." In rejecting claim 13, the Final Rejection alleges that Kawamoto discloses these features in paragraph [0030].

In the cited portion of Kawamoto, "after-injection" is adjusted based on the boost pressure. In contrast, claim 13 recites that the turbine rotation controller decreases the amount of energy of the exhaust gas. Thus, Kawamoto fails to disclose the features of claim 13 as alleged in the Final Rejection, and the Final Rejection fails to provide reasoning why these features would have been obvious. Claim 17 recites similar features and is patentable over the applied art for similar reasons.

**IV. Conclusion**

For all of the reasons discussed above, it is respectfully submitted that the Final Rejection includes legal and factual deficiencies and that all of the pending claims are in condition for allowance. Withdrawal of the rejections in the Final Rejection and allowance of this application are respectfully requested.